

DETRITAL-ZIRCON U-Pb GEOCHRONOLOGY: PRELIMINARY RESULTS OF SEDIMENTARY PROVENANCE OF THE SÃO FRANCISCO CRATON COVERS

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Detrital-zircon geochronology is rapidly evolving into a very powerful tool for determining the provenance and maximum depositional age of clastic strata. This rapid evolution is being driven by the increased availability of ion probes and Laser Ablation Inductively Coupled Plasma Mass Spectrometers (LA-ICP-MS), which are able to generate ages efficiently and with sufficient accuracy for most applications. Furthermore, detrital zircon U-Pb studies are applied to different types of basin for revealing sediment provenance and correlating sedimentary sequences, determining maximum depositional ages and the tectonic environment. Thus, U-Pb zircon data were used to distinguish the provenance and main unconformities of sedimentary cover formed from Statherian to Cambrian in the São Francisco Craton. The São Francisco Craton corresponds to an inner and stable portion of one of the plates involved in the assembly of Gondwanaland in late Neoproterozoic. To the west, the São Francisco Craton is limited by the Araçuaí-West Congo Orogen, which is composed, in its outer part, by the metasedimentary units of the Espinhaço Supergroup and Macaúbas Group. The cratonic adjacent area is mostly covered by the marine neoproterozoic units of the Bambuí Group. All isotopic data were obtained from the Isotope Geology Laboratory of the Federal University of Ouro Preto and specifically, three main sedimentary basins have been worked: the incratonic Espinhaço Basin (1.8-0.9 Ga), passive margin deposits (<0.9 Ga to > 0.63 Ga) and red-bed foreland deposits (Ediacaran to Cambrian) of the São Francisco Group. Although preliminary, our U-Pb data allow distinct detrital zircon age distribution and recognize the following major unconformities: at base of Paleo-Mesoproterozoic Espinhaço Supergroup is recognized Paleoproterozoic and Archean contributions; whereas at the top of Espinhaço Supergroup occurs dominant Paleoproterozoic and subordinate Mesoproterozoic contribution. In Neoproterozoic to Cambrian basins (Supergroup São Francisco), there are two main units: at the base (Jequitaí Formation; lower Sete Lagoas Formation) with age distribution of Paleoproterozoic and Mesoproterozoic, suggesting the same source of Upper Supergroup Espinhaço. At the top (TM = Três Marias Formation) we find strong contribution of Brasiliano zircons and something of Meso and Paleoproterozoic ones. Fission-Track Thermochronology (FTT) and Lu-Hf analysis will be made to complete the thermal history, provenance and petrology of the study area.

PALAVRAS-CHAVE: DETRITAL-ZIRCON U-Pb, SÃO FRANCISCO CRATON COVER, PROTEROZOIC BASINS